

## VI.—DRAFTS FOR A FAUNA INDICA.

(Comprising the Animals of the Himalaya Mountains, those of the Valley of the Indus, of the Provinces of Assam, Sylhet, Tipperah and Arracan, and of Ceylon, with occasional Notices of Species from the neighbouring Countries\*.) By ED. BLYTH, Curator of the Asiatic Society's Museum, &c. &c.†

No. 1. The *Columbidæ*, or PIGEONS and DOVES.

Order IV. GYRATORES, *Pr. Bonap.* GEMITORES, *McGillivray*.  
THIS consists but of a single family, that of the Pigeons,

## Fam. COLUMBIDÆ,

which subdivides into three marked subfamilies, viz. *Treroninæ*, or arboreal fruit pigeons; *Gourinæ*, or ground pigeons; and *Columbinæ*, or ordinary pigeons and doves.

## Subfam. TRERONINÆ.

The members of this group are eminently frugivorous and arboreal, scarcely ever descending to the ground, and some perhaps never, unless to drink‡; and in general they are of a green colour, which renders them difficult to discern amid the foliage of trees. They are distinguished from other pigeons (with the sole known exception of *Ectopistes carolinensis*) by having constantly fourteen tail-feathers instead of twelve§. In form of

\* The object of publishing the present series of Monographs of various groups of animals, is to elicit, as much as to impart, information that might be incorporated in a general work now in preparation; and it is therefore earnestly requested that observers, interested in the subject, will favour the author with any additional facts or corrections that may occur to them, and that they will also endeavour to settle any questions that are still at issue, and, in short, to render the future conspectus of Indian animals as complete as circumstances will permit of. In the class of Birds, it may be here remarked, that any information on the nidification and colour of the eggs of species generally, and of the song-notes of the smaller *Insesores*, will be particularly acceptable. [The notes marked T. have been supplied by Capt. Tickell, and those marked H.E.S. by Mr. H. E. Strickland.]

† From the Journal of the Asiatic Society of Bengal, no. 169.

‡ An individual of *Treron bicincta* has been seen feeding on the ground, but such instances are extremely rare. *Vide* also description of *Tr. nipalensis*.

§ Perhaps, however, certain of the ground pigeons may also have more than twelve tail-feathers, which remains to be ascertained. In the domestic breed of *fan-tails*, the number is abnormally multiplied to as many as thirty or more. It is very remarkable, that of the two species of *Ectopistes*, which are nearly allied to each other, one should have fourteen tail-feathers, while the other, the celebrated passenger-pigeon of North America, should possess but the usual number—twelve. This fact was observed and recorded by the Prince of Canino.

bill, they present a gradation from the strongest beak that occurs throughout the order, to a feeble organ, soft and tumid to near its tip, which alone is corneous; but the gape, especially in the latter case, is very capacious. The tarsi are short, stout, and more or less feathered; and the toes (except in one subgenus) are remarkably broad-soled, and are furnished with strong and sharp claws, commonly much-hooked; hence they have great power of clasping, or holding on to the small branches of trees, while straining to pluck the fruit or berries from the terminal sprays; so that, when feeding, these birds may be commonly observed to lean over and downward so far as to be inverted, and then draw themselves back by the unaided muscular strength of the extremities. The flight of all is powerful and rapid. Three strongly-marked genera occur, numerous species of which inhabit the warm regions of the Old World, Australia, and Polynesia; but from America they are wholly excluded.

Genus *TRERON*, Vieillot: *Vinago*, Cuvier. (*Hurrial* and *Hurrwa*, H.; *Hurtel*, Beng.; *N'goo*, Arracan.) The *HURRIALS*.

In this genus may be observed the gradation in form of bill that has been adverted to in its full extent; but all the strong-billed species are here included. The plumage is blent and glossless, and almost without exception of a lively green, varied with ashy, and with a stripe of bright yellow on the wings margining their coverts; while the males are commonly further adorned with a deep maroon hue\* on the mantle, and with orange, or orange and lilac, on the breast. Irides crimson, with a blue ring encircling the pupil†. The voice a melodious deep-toned whistle, considerably prolonged and varied in different cadences. Nidification as in most other arboreal doves and pigeons, and two white eggs produced, of a somewhat less elongated shape than in common pigeons. Except in the pairing season, these birds collect in small, or moderately large flocks, on the topmost branches of high jungle trees, where, if one can be descried and is shot at, two or three will commonly fall, that had eluded observation from the similarity of their colouring to that of the foliage. They subsist on fruits and berries of all kinds, and during the season especially on the small figs of the *Ficus indica* and *F. religiosa*; and they have likewise been observed "devouring the blossoms and newly-formed fruit of the mangoe

\* This hue, in different shades of vinous or claret-colour, occurs in a great number of *Columbidæ*, and has been remarked to be almost peculiar to the tribe.

† A partial exception to this occurs in *Tr. nipalensis* only, among the Indian species; at least, the only two living specimens of this bird which I have seen had dark red-brown irides, with a blue inner circle. Mr. Hodgson describes them as—"outer circle of the iris orange-red, inner circle blue."

and tamarind trees." Their flesh is esteemed for the table, but the skin requires to be removed, this having a strong bitter taste; and hanging them up for a day or two, when the season will permit of it, improves them much for culinary purposes.

It is necessary to distinguish three well-marked subgenera, as follow:—

A. *TORIA* (since altered to *Romeris*), Hodgson. Distinguished by the great strength and vertical depth of the corneous terminal portion of the beak, which, in the typical species, is continued back to beyond the feathers of the forehead. The eyes are surrounded by a naked space.

*TR. NIPALENSIS*: *Toria nipalensis*, Hodgson, As. Res. xix. 164. (*T'horya*, quasi *rostrata*, of the Nepalese.) Green, yellowish below and towards the tail; the crown of the head ash-coloured; mantle of the male deep maroon-red, and a faint tinge of fulvous on the breast; primaries and their larger coverts black, the latter margined with yellow; middle tail-feathers green, the rest with a blackish medial band and broad gray tips; lower tail-coverts cinnamon-coloured (more or less deep) in the male; subdued white, marked with green, in the female. Bill greenish-white, with a large vermilion spot occupying the membrane at the lateral base of the mandibles; legs also vermilion; irides deep red-brown, with a blue inner circle; and orbital skin bright green. Length,  $10\frac{3}{4}$  inches by 17 inches; closed wing  $5\frac{3}{4}$  in.

This bird inhabits the central and lower hilly regions of Nepal, and more abundantly those of Assam and Arracan, spreading southward to the Tenasserim provinces and Malay peninsula. It also occurs in the hilly districts of Bengal, but rarely strays into the plains, though specimens are occasionally met with even near Calcutta. Mr. Hodgson states, that "it is not very gregarious; adheres to the forests; feeds chiefly on soft fruits; and prefers the trees to the ground, but without absolute exclusiveness of habit in that respect."

Most closely allied and hitherto confounded with it is *Tr. aromatica* of Java, and I believe of the more eastern portion of the Malayan Archipelago generally (the *Col. curvirostris*, and the female, *C. tannensis*, of Gmelin)\*. The latter differs by having a bright yellow beak, greenish at sides towards base, and the nude skin at the sides of its base is apparently blue, fading into a blackish tint in the dry specimen; while in *Tr. nipalensis* the vermilion colour fades to amber; the anterior half of the crown is much more albescent; the fulvous tinge on the breast much stronger; the maroon colour of the back is more extended; the

\* Mr. G. R. Gray's figures of the beak, &c. of a species of Hurrial to which he applies the name *aromatica*, in his illustrated work on the genera of birds, refer to a species of the following section of this genus.

longest tertiaries are greenish-dusky instead of green; and the lower tail-coverts are of a deeper cinnamon colour. Lastly, the corneous portion of the upper mandible scarcely extends quite so far back as in *Tr. nipalensis*; and a curious and marked distinction consists in the Indian species having the inner web of its third primary sinuated, as in the Hurrials of the next section, while its closely allied Javanese representative exhibits no decided trace of such a character\*. In a third species which I refer to this section, the *Tr. Capellei*, Temm.† (common near the Straits of Malacca), the beak is lengthened by the prolongation of its soft and tumid basal portion becoming, as remarked by Mr. Strickland, "almost vulturine in form;" while the size of the bird is considerably larger, and, it may be added, that the sinuation of the interior web of its third primary exists, but not to the same depth as in *Tr. nipalensis*.

B. Typical TRERON. Hurrials with the beak moderately robust, much less so than in the preceding section, its corneous portion occupying the terminal half, or thereabouts. There is no bare space round the eyes, and the tail is squared. Sinuation of the third primary well-developed in eight species examined, and probably therefore throughout the group.

TR. PHENICOPTERA: *Col. phænicoptera*, Latham: *C. militaris*, Temm.: *C. Hardwickii*, Gray (figured in Griffith's Animal Kingdom, viii. 299): *Vinago militaris*, Gould's Century, pl. 58 ‡. Green. The neck all round, with the breast, bright yellowish-green, having a shade of fulvous; cap, sides of base of neck, and the abdominal region ash-gray, the belly with generally some admixture of green, more or less developed, and there is a green

\* This character of the sinuation of the middle of the inner web of the third primary appears to be variable. I have before me two specimens of what I consider the true *aromatica*, both obtained at Malacca, but the male bird presents no trace of such a sinuation, while in the female it is strongly marked. I think therefore that the supposed distinctness of *nipalensis* and *aromatica* requires further confirmation, the differences in colour being very slight.—H.E.S.

† *Treron magnirostris*, Strickland, Ann. and Mag. Nat. Hist. 1844, p. 116, and doubtless *Vin. giganteus* of Raffles, mentioned in the 'Catalogue of Zoological Specimens' appended to Lady Raffles' 'Life of Sir Stamford Raffles,' p. 674, though not the bird referred to in the note attached, which is probably a *Carpophaga*.

‡ Mr. G. R. Gray identifies this bird with *Col. Sti. Thomæ* of Gmelin, to which name he assigns the precedence; but I decidedly think that he is mistaken in so doing. I perceive also that in Griffith's 'Animal Kingdom,' *Col. Sti. Thomæ* is referred to *militaris* of Temminck; this last-named author having stated that *C. Sti. Thomæ* occurs in India.

[The *Columba Sti. Thomæ* was so named from occurring in the island of St. Thomas, on the west coast of Africa, and is undoubtedly distinct from any Asiatic species. It is probably referable to the female of *T. calvus*, Temm., or of *T. crassirostris*, Fraser.—H.E.S.]

tinge on the forehead; shoulder of the wing lilac in the male, and a trace of the same in the female; greater wing-coverts margined with pale yellow, forming an oblique bar across the wing; terminal two-fifths of the tail ash-gray above, albescent underneath, and its medial portion blackish underneath, and deeply tinged with green above; tibial plumes (extending partly down the tarse) and central abdominal feathers between the tibiae bright yellow; vent mingled white and green; and lower tail-coverts maroon, with white tips. Beak whitish; the feet deep yellow. Length  $12\frac{1}{2}$  by 22 inches, and of closed wing 7 to  $7\frac{1}{2}$  inches.

This is one of three closely-allied species, each having its peculiar habitat; and it is intermediate in its colouring to the two others, namely *Tr. viridifrons*, nobis, of the Tenasserim provinces, and *Tr. chlorigaster*, nobis, of Peninsular India. *Tr. viridifrons* is distinguished by having the anterior half of the head and the medial portion of the tail of the same (and as bright) yellowish-green as the breast, though somewhat less fulvescent; that of the tail being *well-defined*, and contrasting strongly both with the gray tip and also with the gray coverts impending the tail, so that this green appears as a very conspicuous broad caudal band: the throat also is not weaker-coloured, as in *Tr. phaenicoptera*. *Tr. chlorigaster*, on the other hand, has the whole under parts green; no trace of green upon the tail, except at its extreme base, and the whole cap and ear-coverts are ashy, devoid (in fine males at least) of the slightest tinge of green on the forehead. These are, in fact, three osculant races, which, if commonly inhabiting the same districts, would doubtless intermix and blend, like *Coracias indica* and *C. affinis*, and likewise certain of the Kalidge pheasants (*Gallophasis*); but within their own proper range of distribution, each continues true to the colouring which distinguishes it from the others. To term them local varieties of the same species, would not merely imply that the three are descended from a common origin, but also that *such* changes of colouring are brought about by difference of locality; a notion which is inconsistent with the fixity and regularity of markings we observe in either race, over an extensive and diversified range of country. *Tr. phaenicoptera* is a very abundant species in Bengal, Assam, Sylhet, Nepal, and all Upper India, its range extending southward at least to the foot of the mountains of Central India, where it would seem to be equally common with the next, and intermediate specimens are met with even in Lower Bengal. In Arracan it does not appear to have been met with, but further southward, in the Tenasserim provinces, it is represented by its other near affine, *Tr. viridifrons*\*.

\* Capt. Hutton writes me word from Mussooree, that *Treron phaenico-*

TR. CHLORIGASTER, nobis, Journ. As. Soc. 1843, p. 167 : *Tr. Jerdoni*, Strickland, Ann. and Mag. Nat. Hist. 1844, p. 38 : *Vinago phænicoptera v. militaris* of Southern India, *Auctorum*. Similar to the last, except in the particulars already mentioned. It replaces *Tr. phænicoptera* in the Peninsula of India, and specimens are occasionally met with in the vicinity of Calcutta. These three species have the feet of a deep yellow colour, whereas in all the other Asiatic Hurrials they would appear to be bright red.

TR. BICINCTA : *Vinago bicincta*, Jerdon, Ill. Ind. Orn. pl. 21 ; Madras Journal, 1840, p. 13 (the male) ; and *V. unicolor*, Jerdon, *ibid.* (the female) : *V. vernans*, var. Lesson's *Traité*. (*Chota Hurrial*, Hind, Bengal.) Green : the forehead and throat brighter and more yellowish, as are the whole under-parts of the female, passing in both sexes to bright pale yellow towards the vent ; occipital region ash-gray ; a stripe of yellow along the wing, formed by the margins of the greater and outer coverts ; tail gray above, with a blackish medial band on all but its middle feathers ; beneath blackish, tipped with grayish-white ; and its lower coverts cinnamon-coloured in the male, and mingled dusky-ash and buffy-whitish in the female. The male is further distinguished by having a large buff-orange patch on the breast, and above this a lilac band, broader at the sides. Bill greenish-glaucous ; and the legs deep pinkish-red. Length 11 or 12 inches by 20, or nearly so ; and of wing generally about 6 inches, rarely as much as  $6\frac{1}{2}$ .

This beautiful species is common to all India, but would seem to be more numerous in Lower Bengal than in the Peninsula ;

*ptera* is "common in the Deyrah Doon, but never mounts into the hills, where it is replaced by *Tr. sphenura*. Many of the Doon birds," he adds, "have come to be regarded as hill species, from their commonly occurring in collections made by residents at the different hill stations. Such collectors however entertain one or more *shikarrees*, who start off sometimes to the Doon, sometimes to the interior of the mountains, just as they happen to remember or to want any bright-coloured bird ; and when the collection is brought in, the collector never dreams of asking where the birds were shot, but puts them all down together as 'a collection from the hills.' Nepal being further to the south-east than Mussooree, a greater elevation may be required to produce the same temperature that we have ; so that birds which with us are found *only* in the warm valley of the Doon, may *perhaps* in Nepal rise to a certain elevation on the mountains !" Capt. Tickell adds, that "*T. phænicoptera* is very common throughout the high stony barren parts of Singhbhoon, and in the Mautbhoon district, confining themselves to the hurgoolur and peepul trees. They breed in the thick damp forests to the southward towards Sumbulpoor, during the rains, at which time not a single specimen is to be found in these parts. The Oorias sell numbers of the young ones, which are taken to Calcutta." All that I have seen with the Calcutta dealers were from the neighbourhood, and chiefly adults newly taken with bird-lime.

and it occurs plentifully in Nepal, Assam, Sylhet, Tipperah, Arracan and the Tenasserim provinces. In Bengal, however, it is much less numerous than *Tr. phænicoptera*, and the flocks of the two species do not commingle. I once found its nest, half-way up a small mahogany tree, in the Calcutta Botanic Garden. The eggs, of a somewhat less lengthened form than in pigeons generally, measured an inch and a quarter in the long diameter. I have also obtained the young, which resemble in colouring the adult female. The voice is much the same as in *Tr. phænicoptera*.

Mr. G. R. Gray has erroneously identified this bird with *Tr. vernans* (L.), common in the Malay countries. The latter differs in its smaller size, having the wing but  $5\frac{1}{2}$  inches; in the male having the entire crown and throat gray, instead of green; in the very much greater development of the lilac colour above the orange of the breast, this enveloping the whole neck, whereas in *Tr. bicincta* it is confined to a band above the breast; and in the tail being gray above, with a blackish *terminal* band, and slight grayish extreme tips to the feathers; whereas *Tr. bicincta* has a broad whitish terminal band to the tail, as seen underneath, and which appears of a dull ash-colour above. No two species can be more obviously distinct\*.

TR. MALABARICA: *Vinago malabarica*, Jerdon, Ill. Ind. Orn. (Art. *V. bicincta*): *V. aromatica*, apud Jerdón, Catal. (the male); and *V. affinis*, Jerdon, *ibid.* (the female): also *V. aromatica* of Southern India, Jardine's Nat. Libr., *Columbidæ*. This bird exactly resembles *Tr. nipalensis* in size and colouring, except in having a yellower throat in both sexes; but is at once distinguished by the very different form of its beak, and by having no naked space round the eyes; the buff tinge on the breast of the male is also more decided, and its legs are 'lake-red.' The female may be distinguished from that of *Tr. bicincta* by the ash-colour of its forehead and entire crown, and by its unspread tail being wholly green above.

Mr. Jerdon's specimens of this bird were obtained on the western coast of the Peninsula, and at the foot of the Neilgherries. I have never seen it from Northern India; but to the eastward it inhabits Assam †, Sylhet, Tipperah, and appears to be equally common with *Tr. nipalensis* in the island of Ramree, Arracan.

\* I killed a specimen of *Tr. bicincta* some years ago in Singhbhoom, when firing into a flock of the common Hurrial; and I have more than once remarked in a flock of the latter, smaller individuals, which I have no doubt were interlopers of this species. It is exceedingly rare here, for I have never obtained another specimen.—T.

† It is figured among Dr. McClelland's drawings of the birds of Assam.

There is a nearly allied species in the Nicobar islands, *Tr. chloroptera*, nobis, which differs in its superior size, having the wing 7 inches, instead of 6 to  $6\frac{1}{4}$ ; and in the male having a large portion of the fore part of its wing green instead of deep maroon; its breast also is less tinged with fulvous, and the forehead more albescent.

*Columba pompadora*, Gmelin, founded on pl. 19 and 20 of Brown's Zoology (1776), should be another nearly allied species, inhabiting Ceylon; but as both figure and description represent the back to be green instead of maroon, like the rest of the mantle, and as it is also described as "smaller than the turtle-dove," it clearly cannot be *Tr. malabarica*, and is probably a sort of representative (as regards its diminutive size) of *Tr. olax* of the Malay countries\*.

C. SPHENURUS, Swainson: *Sphenocercus*, G. R. Gray. Hurrials with cuneiform tail, of which the central feathers are, in some species, much elongated beyond the rest, and their prolonged tips attenuated, with the basal two-thirds or more of the bill soft and tumid, and with the soles of the toes narrow, whereas in the preceding sections they are particularly broad and flat: a nude livid space surrounds the eyes, but less developed than in the first section; and the curious character observable throughout the preceding group, of having the inner web of the third primary abruptly sinuated, does not exist in the present one. These birds are exclusively mountaineers, inhabiting the hill-forests, and are remarkable for the music of their notes.

TR. SPHENURA: *Vinago sphenura*, Vigors, Proc. Zool. Soc. 1831, p. 173; Gould's Century, pl. 57: *Kokla* or *Kokhela*, H. (a name also applied to the next species). Very similar in colouring to *Tr. nipalensis* and *Tr. malabarica*, but larger, and at once distinguished by its cuneiform tail; by the greater development of the soft basal portion of its bill; also by the green colour tinged in the male with buff of its crown; by the considerable diminution of the maroon colour on the mantle of the male, especially on the back, the posterior scapularies, the tertiaries, and the great wing-coverts being green; and by having but a slight pale yellow margin to only the great coverts of the wing. Tail green above, with an ill-defined subterminal dusky band to its outer feathers, and uniform dull albescent-gray underneath; its lower coverts long, and of a pale rufous-buff hue in the male, yellowish white with green centres in the female, as are likewise the short outer ones of the male; breast of the latter deeply tinged with buff. In the female, the subterminal dusky band on

\* I have no doubt of the identity of *pompadora* and *malabarica*. Brown's description is drawn up from the sketch of a native artist, and great accuracy cannot therefore be expected.—H.E.S.



the three outer tail-feathers is much better defined. Irides coloured as usual; the bill, and nude skin around the eye, livid, and legs coral-red. Wing 7 to  $7\frac{1}{4}$  inches; middle tail-feathers  $5\frac{3}{4}$  inches.

This species inhabits the Himalaya, and is, I believe, more abundant in the south-eastern portion of the chain, as in Nepal and at Darjeeling, though it is also common at Simla. Capt. Hutton writes from Mussoorie—"This species is very numerous in the hills from April to June, when, having reared its young, and the rains having set in, it becomes scarcer, and gradually disappears during the rainy season. The nest is in high trees, composed of dried twigs, a mere platform; and the eggs are two, and white. I heard the first *Kooklah* this year on the 12th of April." It is greatly prized by the natives as a cage-bird, on account of its singularly prolonged and varied musical note, which is an improvement upon that of *Tr. phænicoptera* and its allies. A few are even brought in cages to Calcutta, and sell at a high price as song-birds. I have heard the notes of both this and the next species, which I think are absolutely similar: they bear some resemblance to the human voice in singing, and are highly musical in tone, being considerably prolonged and modulated, but always terminating abruptly; and every time the stave is repeated exactly as before, so that it soon becomes wearisome to an European ear\*.

TR. CANTILLANS: *Vinago cantillans*, nobis, Journ. As. Soc. xii. 166: *Col. aromatica*, var. A, Latham. Size and proportions of last, but the green colour replaced by a delicate pearl-gray, with a slight tinge of green here and there, more especially on the under-parts: forehead and throat whitish; the crown and breast of the male tinged with ruddy or weak maroon; and the mantle marked, as in *Tr. sphenura*, with deeper maroon: a slight yellowish-white outer edging to the greater wing-coverts. Irides as usual in this genus, or having a crimson ring encircling a violet one: bill and bare skin around the eye glaucous-blue,

\* *Tr. sphenurus*. This bird, the *Kookoo-fo* of the Lepchas at Darjeeling, is there exceedingly common, but is not so extensively gregarious as the common Hurrial of the plains. They frequent the highest trees, feeding on their berries, and running along the branches with great agility. The male has a most agreeable note, exactly resembling the music of a pastoral reed or pipe. It breeds in June and July, making a large nest in high trees, deeper than that of the common doves and wood pigeons. Bill pale livid blue, nearly white at tip, and pale clear cobalt basally. The young resemble the female; and the ruddy tinge of the back and small wing-coverts of the male is not assumed until the second year.—T.

I have observed this red to be less developed in some specimens, but still suspect that more or less of it would be obtained at the first moult.—E.B.

and legs and toes reddish-carneous. The female I have not yet seen. Length 13 by 21 inches; closed wing 7 inches.

This species occurs in the north-west Himalaya, as about Simla, and is, I believe, rare in Nepal. I kept one alive for some time that was stated to have been brought from Agra, whither it had no doubt been carried from the hills. Can it be a variety only of the last?

TR. APICAUDA, Hodgson (mentioned in Mr. G. R. Gray's Catalogue of the Ornithological Specimens in the British Museum). Nearly allied to *Tr. oxyura* of the Malay countries, from which it is at once distinguished by the pale yellow margins of its great wing-coverts, forming two narrow longitudinally oblique bars on the wing. General colour green, more yellowish towards the tail and on the under-parts, and tinged in the male with russet on the crown and breast; primaries dusky black; tail with its middle feathers greatly prolonged beyond the rest, and their elongated portion much attenuated; its colour gray with a medial blackish band, obsolete on the middle pair of feathers, which at base are yellowish-green. Bill evidently glaucous-bluish, and legs red. Length of wing  $6\frac{1}{2}$  inches, and of middle tail-feathers 8 inches or more, passing the next pair by about 3 inches.

Inhabits the south-eastern Himalaya and the hill-ranges of Assam, being tolerably common at Darjeeling.

Genus CARPOPHAGA, Selby (1835): *Ducula*, Hodgson (1836): *Dukul*, or *Dunkul*, H. The DUNKULS.

These fruit pigeons are mostly of large size, with broad-soled feet and strong hooked claws, much as in the typical Hurrials, and a slender, generally somewhat lengthened bill, having the terminal third only of its upper mandible corneous, and the plumage of the chin advancing very far forward, underneath the lower mandible. In a few species the base of the upper mandible expands to form a fleshy knob. Wings, in all the typical species, adapted for powerful flight. The plumage of the head, neck and under-parts, and in some species throughout, is blent and glossless, and mostly of a delicate gray, or a vinous hue, with never the peculiar burnish on the sides of the neck so general among ordinary pigeons; but many species have the upper parts, wings and tail shining metallic green, which in some is bronzed or coppery, in others varied with rich steel-blue; hence several are among the most showy of the pigeon tribe; others, however, being simply black and white, though all are alike handsome when viewed in the fresh state, from the delicate beauty of the irides, bill, feet, and any nude skin about the head, the exquisite colouring of which is lost in the dry specimen. These birds are more especially developed in the great Oriental Archipelago, where

the species are very numerous, two only occurring in India, and others in Australia and Polynesia. They are gregarious, like the Hurrials, and keep exclusively to the great forests, more especially to those of upland districts: and it would appear that they do not generally lay more than a single egg, and certain species invariably but one; in which respect they resemble the celebrated Passenger Pigeon of North America (*Ectopistes migratoria*). At least three subgenera occur, at the head of which may be placed *Lopholaimus*, G. R. Gray, founded on the *Col. antarctica*, Shaw (v. *dilopha*, Temm.), of Australia; then follow the ordinary Dunkuls, of which the two Indian species are characteristic; and finally a short-winged type, with bill and feet as in the former, and colouring as in the division *Chalcophaps* (of the next subfamily), to which I apply the appellation *Dendrophaps*.

C. INSIGNIS: *Ducula insignis*, Hodgson, As. Res. xix. 162: *Carp. cuprea*, Jerdon, Madr. Journ. 1840, p. 12, and subsequently referred by him to *Col. badia*, Raffles, *ibid.* 1844, p. 164. (*Dukul*, Nepal; *Dunkul*, H.) Head, neck and under-parts pale ruddy lilac-gray; the throat albescent; and crown pure cinereous in some specimens, in others tinged with ruddy; back and wings deep vinaceous-brown; the rump and upper tail-coverts dusky-cinereous, and the lower tail-coverts buffy-white; tail dusky, with its terminal fourth dull ashy above, and albescent as seen from beneath. Bill, circle of eyelids and legs intense sanguine, except the tip of the bill and the claws, which are horn-coloured; orbital skin livid; and irides "hoary or blue-gray," according to Mr. Hodgson, "red," as stated by Mr. Jerdon. Length 20 inches by  $2\frac{1}{2}$  feet (Hodgson), 19 by 26 inches (Jerdon); of wing  $9\frac{1}{2}$  inches, and of tail 8 inches. Weight a pound and a half. "The female," remarks Mr. Hodgson, "is a fourth smaller than her mate, wants almost wholly the rich vinous tint of the male, and is generally more obscurely coloured."

This diversity of colouring of the sexes reminds us of the Hurrials; and it may be remarked, that the general tints are not very different from those of *Treron cantillans*. The species inhabits the Himalaya and the Neilgherries; and Captain Phayre has obtained it in the Ya-ma-dong mountains, which separate Arracan from Pegu. It appears to keep always to a more elevated region than the next species, as near the snow line of the Himalaya; and Mr. Hodgson states that it is "almost solitary" in its habits\*.

\* *Carpophaga insignis*. Of this fine species I killed a female (one of a pair, the male of which escaped) at Kursiong, towards the end of the month of June. It is not common. The pair were perched on a small tree on the summit of the hill, feeding on berries, with which the crop of the

The *Col. badia*, Raffles (v. *capistrata*, Temm.), of the Malay countries, would appear to be very closely allied in its colouring, but considerably inferior in size; the two are regarded as distinct by Mr. G. R. Gray.

C. SYLVATICA: *Col. sylvatica*, Tickell, Journ. As. Soc. ii. 581: *C. aenea* of India, *Auctorum*; but not of Raffles, Linn. Trans. xiii. 316. (*Dunkul*, H.; *Pyoon-ma-dee*, Arracan.) Head, neck and under-parts pearl-gray, purer on the crown and breast, and tinged elsewhere (and occasionally on the crown) with ruddy-vinaceous; back, wings, rump and tail shining coppery-green, with a dash of gray on the large alars, and greenest upon the tail; under tail-coverts dark maroon; chin and immediately around the base of the bill white. "Irides and orbits lake-red; bill slaty, at base above red, at tip bluish-white; legs lake-red," (Jerdon). Another observer describes the irides to be "deep pink;" but Captain Tickell writes: "Eyes orange; feet rose-coloured; bill horny, bluish over the nostrils." Length 18 or 19 inches; expanse  $2\frac{1}{2}$  feet; closed wing 9 inches to  $9\frac{1}{2}$ , and tail 6 inches to  $6\frac{1}{2}$ ; sexes alike.

"This fine species," remarks Mr. Jerdon, "is found in all the lofty forests of the west coast, single, or in small parties of three or four. It has a single, low, plaintive note." Captain Tickell, in his 'List of Birds collected in the Jungles of Borabhúm and Dholbhúm,' states that it is "common in some parts, preferring the open and large-timbered tracts. They are wild and difficult of approach, and go generally in small parties of four or five. The voice is deep, and resembles groaning." I have never seen it from the Himalaya, but it is very abundant in the hill regions of Assam, Sylhet, Tipperah, and Arracan; also in the Tenasserim provinces; and the Asiatic Society has received it from Java. A writer in the 'Bengal Sporting Review' (no. 2. p. 89) observes, "The habits of this handsome bird are strictly arboreal; it is seldom seen but in the depths of the jungle; is gregarious, like the Hurrials, but is only a cold-weather resident in the eastern districts of Bengal, and breeds elsewhere\*. It makes its appearance in November, and leaves towards the end of March. Its favourite food consists of the bijer plum (*Zizyphus Jujuba*), and a jungle berry, called by the natives *Anygootah*. When wounded it evinces more spirit than the *Columbidæ* appear generally to possess; erecting the feathers of its head and neck, and

female was filled. Voice a deep short groan, repeated—'woo-woo-woo.' Length of this female 17 inches by 27 inches in spread of wing; wing 9 inches. Irides pearl-gray; bill dull lake, with blackish tip; legs dull lake. Back, scapularies and wing-coverts full deep vinous ash-gray washed with cupreous, the latter pervading the tips and edges of the feathers.—T.

\* Mr. Frith found a nest of this bird in the Garrow hills.

buffeting with its wings the hand that captures it. The note is harsh, not unlike the croaking of a bull-frog\*.”

There are several closely allied species: *C. ænea*, as figured (*i. e.* the head) by Mr. G. R. Gray in his illustrated work on the ‘Genera of Birds,’ has a large round knob at the base of its upper mandible, of which the Indian species never presents the slightest trace; and a beautiful specimen before me, from Borneo (?), exhibiting this knob, differs also from the Indian species in several other particulars †. Another, from the same region, exactly resembles the Indian species, except in its inferior size, having the wing but 8 inches, and the rest in proportion; this is doubtless the *C. ænea* of Raffles’s list, described as “exceeding 15 inches in length”; so that in Sumatra there would appear to be closely allied diminutives of both the Indian species ‡. *C. perspicillata* of Java and the Moluccas also approximates a good deal, but is readily enough distinguishable.

Of the third great genus of fruit-eating pigeons, *Ptilinopus*, also largely developed in the Eastern Archipelago and Polynesian isles, no Indian species has been discovered; the *Pt. Elphinstonii* of Sykes (seemingly) appertaining to the same group of ordinary pigeons as the British Cushat or Ring-dove.

[To be continued.]

#### BIBLIOGRAPHICAL NOTICES.

*A Natural History of the Mammalia.* By G. R. WATERHOUSE, Esq., of the British Museum. Illustrated with engravings on wood and coloured plates. London, H. Baillière.

THE first volume of this excellent work, in which every species in the class Mammalia will be described in detail, is now completed. The author is already favourably known to the public by various monographs, and by papers in this Journal, on the Rodentia, Marsupialia and other animals. His former connexion with the Zoological Society and his present position in the British Museum (where he is

\* *C. sylvatica*. I have found these birds only in one part of my district, —in the jungles bordering on Midnapore. They were in a party of eight or ten, perching on detached trees, in a wide plain of jungle-grass. The notes are deep and ventriloquous. By the Oorias it is called *Sona Kubootra*, or Golden Pigeon; it is also termed *Burra* (or Great) *Hurrial*.—T.

† It seems to be the “Sumatran Pigeon, no. 12,” of Latham.

‡ The true *Columba ænea* of Linnæus is founded on the *Palumbus moluccensis* of Brisson, whose figure and description perfectly accord with the Indian bird, though it is stated to be from the Moluccas. The knob-fronted species will stand as *C. myristicivora*, Scop. (*C. globicera*, Wagl.), founded on Sonn. Voy. Nouv. Guinée, pl. 102. Mr. Gray erroneously applies the name *myristicivora* to Sonn. pl. 103, which is the *bicolor* of Scopoli.—H.E.S.